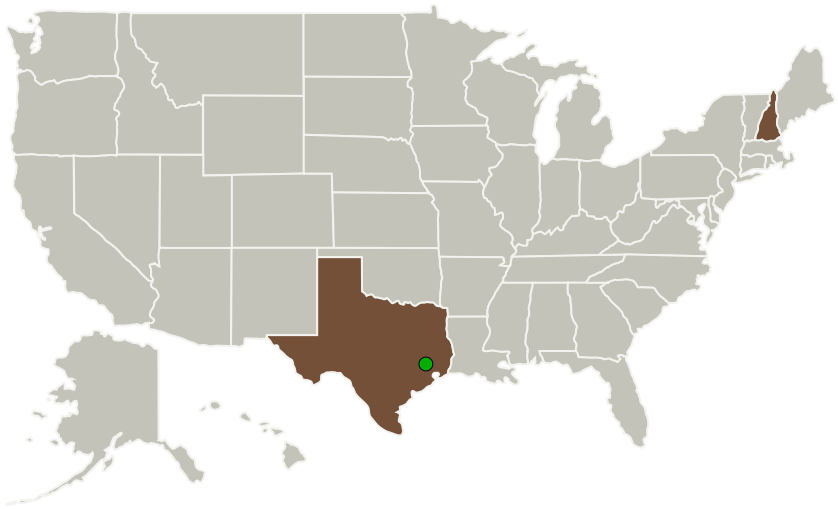
Nonventing Thermal and Humidity Control for EVA Suits, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

Future manned space exploration missions will require space suits with capabilities beyond the current state of the art. Portable Life Support Systems for these future space suits are extremely challenging, since they must maintain healthy and comfortable conditions inside the suit for long-duration missions while minimizing weight and venting no consumables. We propose an innovative system for thermal and humidity control in a space suit that is simple, rugged, lightweight, and nonventing. In Phase I we will prove the feasibility of our approach by analysis and laboratory testing of a proof-of-concept unit to identify the optimum configuration. We will produce a conceptual design for a full-size system. In Phase II we will develop fabrication methods to produce a full-size prototype, then demonstrate operation in a prototypical environment.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Creare LLC	Lead Organization	Industry	Hanover, New Hampshire
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

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Primary U.S. Work Locations	
New Hampshire	Texas

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140086)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Creare LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Michael G Izenson

Co-Investigator:

Michael Izenson

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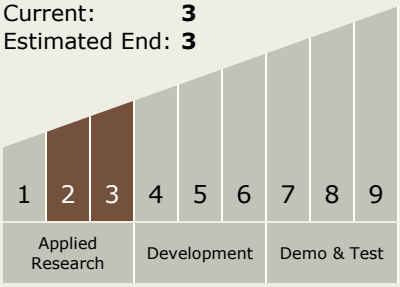
Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.2 Portable Life Support System

Target Destinations

Earth, The Moon, Others Inside the Solar System, Outside the Solar System, The Sun, Mars